

On some species of *Euglena* Ehr. from Singapore (De Species *Euglenae* Ehr. ex Singapore.)

by

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Abstract

Six forms of *Euglena* Ehr., collected by the author in the Lake of the Botanic Gardens in 1962, are described. They are (1) *E. downiae* sp. nov., named in honour of Mrs. V. V. Down a British resident of Singapore and an old friend of the author's family, (2) *E. prowsei* sp. nov., named in honour of Dr. G. A. Prowse, Director of the Freshwater Fish Culture Research Institute, Malacca, (3) *E. proxima* Dang., var. *tropica*, var. nov., (4) *E. clara* Skuja var. *singaporensis* var. nov., and (5) *E. variabilis* Klebs.

On 25th July 1962 the author arrived in Singapore on a journey from China to Brazil, and, thanks to the kindness of Mrs. V.V. Down, he was enabled to visit the Singapore Botanic Gardens and her own private garden where material was collected for his future studies. Samples of water plants and pond mud were taken for cultivation of algae by addition of pepton at the Cryptogamic Laboratory of the Botanic Institute, Sao Paulo, Brazil. The culture was found to contain the material described below.

The holotype of *Euglena downiae*, *E. prowsei*, *E. proxima* var. *tropica*, and *E. clara* var. *singaporensis* are preserved at the Cryptogamic Laboratory of the Botanical Institute of Sao Paulo, Brazil (S.P.).

1. *Euglena downiae* sp. nov. Plate I, figs. 1-4.

Differt a *Euglena proxima* Dang. (vide Popova, 1955, p. 143, figs. 50, 1-3) periplasto non striato, granulis paramylaceis, non annulatis, ecoloratis, flagellis, fere $\frac{1}{2}$ - $\frac{2}{3}$ cellulae aequilongis.

Cellula fusiformis, metabolica, anteriore plus minusve attenuata oblique obtusa, posteriore recta vel obliqua, breviter acuta, $18-30-47-55-63 \times 12-15-25 \mu$. *Periplastus* non striatus. *Flagellum* breve $\frac{1}{2}$ cellulae usque aequilongum. *Stigma* rubrum oblongum. *Gula* elongata vel ovalis. *Nucleus* medianus, vel supra vel infra medium situs. *Chromatophora* disciforma numerosa vel nulla. *Granula* paramylacea ovalia vel bacilliformia, non annulata.

Habitat: Singapore, Horto Botanico, in lacu, legit B. Skvortzov, July 1962 — S.P.

Dedicavi in honorem Dominae V.V. Down, Singapore.

Cell fusiform, metabolic, $18-63 \times 12-25 \mu$; anteriorly more or less narrowed, obliquely obtuse, posteriorly straight or oblique, shortly acute. *Periplast* non striate. *Flagellum* small up to half the

length of the cell. *Stigma* red, oblong. *Gullet* elongate or oval. *Nucleus* situated in the middle or above or below the middle. *Chromatophores* absent, or when present many, disc-shaped. *Granules* paramylaceous, oval or bacillus-shaped, not annulated.

Differs from *E. proxima* (vide Popova, 1955 p. 143, figs. 50, 1-3) in the periplast being non-striate, granules paramylaceous not coloured and not annulated, flagella nearly half or $\frac{2}{3}$ the length of the cell.

I have dedicated this species to Mrs. V. V. Down, Singapore.

2. *Euglena prowsei* sp. nov. Plate I, fig. 5.

Differt a *E. minuta* Prescott et *E. vivida* Playfair cellulis sine pyrenoidibus.

Cellula late fusiformis utrinque apiculatis, plus minusve attenuatis. *Flagellum* cellulae longius. *Stigma* oblongum, rubrum. *Chromatophorum* laminatum viride sine pyrenoidibus. *Granulis* paramylaceis numerosis ovoideis, utrinque chromatophoris. *Nucleus* magnus posterior.

Habitat: Singapore, Horto Botanico, in lacu cum plantis aquaticis, legit B. Skvortzov, August 1962 — S. P.

Dedicavi haec speciem ad Dom. Dr. G. A. Prowse, Director of Tropical Fish Culture Research Institute, Batu Berendam, Malacca.

Cells broadly fusiform, apiculate at both ends, more or less narrowed. *Flagellum* longer than the cell. *Stigma* red, oblong, anterior. *Chromatophore* laminated, green without pyrenoids. *Granules* paramylaceous, numerous, ovoid coloured on both sides. *Nucleus* large, posterior.

Differs from *E. minuta* and *E. vivida* in the absence of pyrenoids in the cells.

3. *Euglena proxima* Dang. var. *tropica* var. nov. Plate I, fig. 6.

Differt a *E. proxima* Dang. (vide Popova, 1955, p. 143, fig. 50, 1-3) granulis haematochrome in parte posteriore cellulae instructis.

Cellula late fusiformis, $25-35 \times 20-22 \mu$. *Periplasto* non striato. *Stigma* ovale. *Chromatophorum* disciforme sine pyrenoidibus. *Granulis* paramylaceis, annulatis; eis haematochromis numerosis parte posteriore cellulae. *Nucleus* posterior. *Flagellum* cellula longius.

Habitat: Singapore, Horto Botanico, in lacu, legit B. Skvortzov, July 1962 — S.P.

Cells broadly fusiform, $25-35 \times 20-22 \mu$. *Periplast* non striate. *Stigma* oval. *Chromatophores* disc-shaped, without any pyrenoids. *Granules* paramylaceous, annulated; haematochromes numerous in the posterior. *Nucleus* posterior. *Flagellum* longer than the cell.

Differs from *E. proxima* Dang. (Vide Popova, 1955, p. 143, figs. 50, 1-3) in the presence of haematochromic granules in the posterior of the cell.

4. ***Euglena clara*** Skuja in Popova (1955), Plate I, figs. 7–8.

Cells metabolic, fusiform, anteriorly shortly attenuate, obliquely rounded at apex, posteriorly gradually attenuate, acute or obtuse, $25-37-40 \times 10-20 \mu$. *Chromatophores* in oblong plates with sheathed pyrenoids. Paramylaceous granules bacilliform. Haematochrome granules numerous in the middle of cell. *Flagellum* $\frac{2}{3}$ of the cell-length. *Eyespot* oblong, red. *Gullet* oblong, nucleus distinct.

Differs from the type form in having hyaline periplast and haematochromic granules.

Habitat: Singapore, Botanic Gardens, in a pond collected by B. Skvortzov, July 1962. Reported from Europe.

5. ***Euglena clara*** Skuja var. ***singaporensis*** var. nov. Plate I, fig. 9.

Differt a *E. clara* var. *clara* granulis paramylaceis majoribus, ellipsoides.

Cellula ca. 30μ longa. *Granula* paramylacea eis var. *clarae* majora, ellipsoidea.

Cells about 30μ long. Paramylaceous granules ellipsoidal, longer than those in the type form.

Habitat: Singapore, Botanic Gardens, in pond collected with the type form by B. Skvortzov, July 1962. Type in Herb. S.P.

6. ***Euglena variabilis*** Klebs in Popova, 1955. Plate I, fig. 10–12.

Cells ovoid or short ellipsoid, rarely fusiform, $25-35 \times 7.20 \mu$. *Periplast* not seriated. *Flagellum* about cell length. *Eyespot* red, large, oblong. *Chromatophores* in large, roundish or oval plates without pyrenoids. Paramylaceous granules small, oval, numerous.

Habitat: Singapore, Botanic Gardens, in a pond, collected by B. Skvortzov, July 1962, together with *E. clara*. Reported from Europe, central and eastern parts of Asia.

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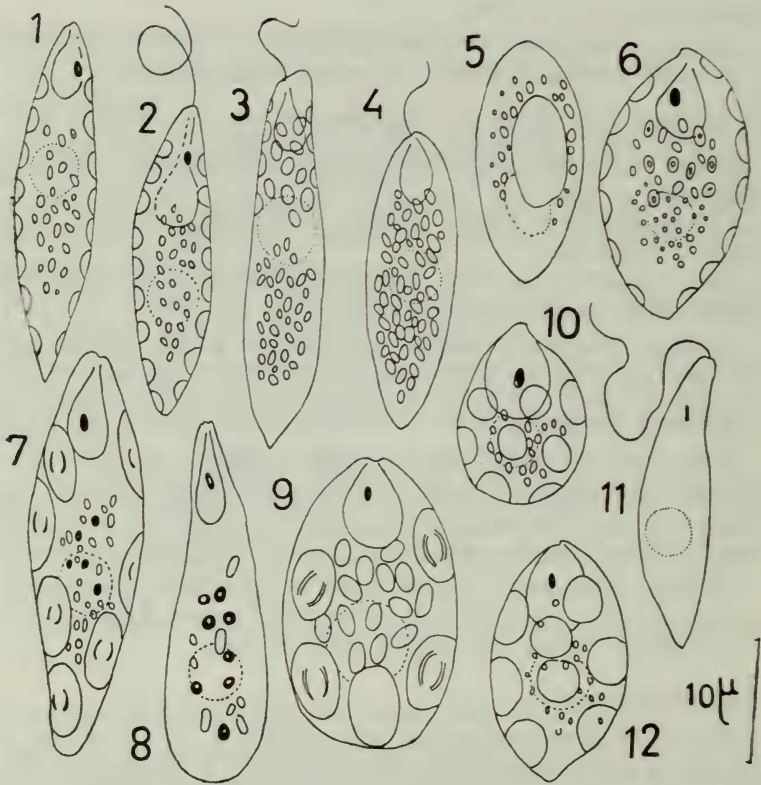


Plate I. Fig. 1-4, *E. downiae*; Fig. 5, *E. prowsei*; Fig. 6, *E. proxima* var. *tropica*; Fig. 7-8, *E. clara*; Fig. 9, *E. clara* var. *Singaporensis*; Fig. 10-12, *E. variabilis*.